

FCC Radio Test Report

FCC ID: O57C640MT7921

Project No. : 2007T046C
Equipment : Notebook Computer
Brand Name : Lenovo
Test Model : Yoga 6 13ARE05
Series Model : Yoga 6 13ARE05*****, Yoga 6 13ALC6, Yoga 6 13ALC6*****
 (*=0~9, A~Z, "_" or blank)
Applicant : Lenovo (Shanghai) Electronics Technology Co., Ltd.
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 (Shanghai) Pilot Free Trade Zone
Manufacturer : Lenovo PC HK Limited
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 Kong, P.R.China
Date of Receipt : Jun. 07, 2021
Date of Test : Jun. 07, 2021 ~ Jun. 24, 2021
Issued Date : Jul. 06, 2021
Report Version : R00
Standard(s) : FCC Part15, Subpart C (15.247)
 ANSI C63.10-2013
 FCC KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



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Declaration

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BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

Table of Contents	Page
REVISION HISTORY	5
1 . SUMMARY OF TEST RESULTS	6
1.1 TEST FACILITY	7
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST ENVIRONMENT CONDITIONS	7
1.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING	7
2 . GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF EUT	8
2.2 DESCRIPTION OF TEST MODES	10
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
2.4 SUPPORT UNITS	11
3 . AC POWER LINE CONDUCTED EMISSIONS TEST	12
3.1 LIMIT	12
3.2 TEST PROCEDURE	12
3.3 DEVIATION FROM TEST STANDARD	12
3.4 TEST SETUP	13
3.5 EUT OPERATING CONDITIONS	13
3.6 TEST RESULTS	13
4 . RADIATED EMISSION TEST	14
4.1 LIMIT	14
4.2 TEST PROCEDURE	15
4.3 DEVIATION FROM TEST STANDARD	15
4.4 TEST SETUP	16
4.5 EUT OPERATING CONDITIONS	18
4.6 TEST RESULTS - BELOW 30 MHZ	18
4.7 TEST RESULT - 30 MHZ TO 1000 MHZ	18
4.8 TEST RESULT - ABOVE 1000 MHZ	18
5 . OUTPUT POWER TEST	19
5.1 LIMIT	19
5.2 TEST PROCEDURE	19
5.3 DEVIATION FROM TEST STANDARD	19
5.4 TEST SETUP	19
5.5 EUT OPERATING CONDITIONS	19

Table of Contents	Page
5.6 TEST RESULTS	19
6 . MEASUREMENT INSTRUMENTS LIST	20
7 . EUT TEST PHOTO	21
APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS	24
APPENDIX B - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	29
APPENDIX C - RADIATED EMISSION - ABOVE 1000 MHZ	32
APPENDIX D - OUTPUT POWER	49

REVISION HISTORY

Report No.	Version	Description	Issued Date
BTL-FCCP-2-2007T046	R00	Original Report.	Aug. 28, 2020
BTL-FCCP-2-2007T046A	R00	1. Added Series models. 2. Added CPU. 3. Added a new appearance without cover. 4. Changed adapter.	Mar. 23, 2021
BTL-FCCP-2-2007T046B	R00	1. Added Realtek / MT7921 module card. 2. Added adapter * 2.	May 12, 2021
BTL-FCCP-2-2007T046C	R00	Added MediaTek / MT7921 module card.	Jul. 06, 2021

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C	PASS	-----
15.247(a)(2)	Bandwidth	NOTE (3)	Pass	-----
15.247(b)(3)	Output Power	APPENDIX D	Pass	-----
15.247(e)	Power Spectral Density	NOTE (3)	Pass	-----
15.247(d)	Antenna conducted Spurious Emission	NOTE (3)	Pass	-----
15.203	Antenna Requirement	-----	Pass	-----

Note:

- (1) "N/A" denotes test is not applicable to this device.
- (2) This is to request a Class II permissive change for FCC ID: O57C640MT7921.
- (3) This item is demonstrated to full compliance referring to the test report number as below table of the integrated module (model name: MT7921, FCC ID: RAS-MT7921), according to KDB 996369 D02 Q1 a) 2).

RF Module model	Report Number	Module Function
MT7921	RF200317E01	WLAN 2.4G
MT7921	RF200317E01-1, RF200317E01-4, RF200317E01-5	RLAN 5G Band 1~4
MT7921	RF200317E01-2	Bluetooth EDR
MT7921	RF200317E01-3	Bluetooth LE

- (4) The ac power lines conducted emissions and radiated emissions are tested to demonstrate full compliance of both module integrated into the host and host itself.
- (5) The output power of integrated module have been reduced, therefore, the full output power tests are performed and recorded.
- (6) Based on the RF module the antennas for this Notebook Computer were updated as below table:

Antenna Information			
Antenna 1 (WLAN combo)	Manufacturer	AWAN	
	Antenna Type	Main: PIFA Antenna	Aux: PIFA Antenna
	Part number	AUF6Y-100025 (DC33002GC00)	AUF6Y-100026 (DC33002GC10)
	Peak gain	Main Antenna :	Aux Antenna :
		WLAN(2.4G):1.14dBi	WLAN(2.4G):-1.53dBi
		WLAN(5G B1-3):-1.73dBi WLAN(5G B4):-2.83dBi	WLAN(5G B1-3):-2.43dBi WLAN(5G B4):-1.54dBi

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.60

B. Radiated emissions Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9kHz ~ 30MHz	V	3.79
		9kHz ~ 30MHz	H	3.57
		30MHz ~ 200MHz	V	4.88
		30MHz ~ 200MHz	H	4.14
		200MHz ~ 1,000MHz	V	4.62
		200MHz ~ 1,000MHz	H	4.80
		1GHz ~ 6GHz	-	4.58
		6GHz ~ 18GHz	-	5.18
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	24°C	57%	AC 120V/60Hz	Kwok Guo
Radiated Emissions-30 MHz to 1GHz	23°C	52%	AC 120V/60Hz	Kwok Guo
Radiated Emissions-Above 1000 MHz	23°C	52%	AC 120V/60Hz	Kwok Guo
Output Power	25.8°C	54%	AC 120V/60Hz	Kwok Guo

1.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

Test Software	WCN Combo Tool 0.01			
Modulation Mode	2402 MHz	2440 MHz	2480 MHz	Data Rate
BLE5.0	7	7	7	1 Mbps
BLE5.0	7	7	7	2 Mbps

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Notebook Computer
Brand Name	Lenovo
Test Model	Yoga 6 13ARE05
Series Model	Yoga 6 13ARE05*****, Yoga 6 13ALC6, Yoga 6 13ALC6***** (* = 0~9, A~Z, “_” or blank)
Model Difference(s)	Differ in marketing purpose.
Hardware Version	LA-K211P
Software Version	19041.329
RF Module Model	MT7921
EUT Power Rating	20Vdc 2.25A
Power Adapter Power Rating	- Brand: Acbel (Lenovo) M/N: ADLX45YAC3D I/P: 100-240V~1.2A 50-60Hz O/P: 20.0Vdc 2.25A 45.0W/15.0Vdc 3.0A/9.0Vdc 2.0A/5.0Vdc 2.0A 10.0W - Brand: Chicony (Lenovo) M/N: ADLX45YCC3G I/P: 100-240V~1.3A 50-60Hz O/P: 20.0Vdc 2.25A 45.0W / 15Vdc 3A / 9Vdc 2A / 5.0Vdc 2.0A 10.0W - Brand: Delta (Lenovo) M/N: ADLX45YDC3D I/P: 100-240V~1.2A 50-60Hz O/P: 20.0Vdc 2.25A 45.0W / 15.0Vdc 3.0A / 9.0Vdc 2.0A / 5.0Vdc 2.0A 10.0W
Power Adapter	- Acbel (Lenovo) / ADLX45YAC3D - Chicony (Lenovo) / ADLX45YCC3G - Delta (Lenovo) / ADLX45YDC3D
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Technology	GFSK
Bit Rate of Transmitter	1Mbps, 2Mbps
Max. Output Power	1 Mbps: 10.64 dBm (0.0116 W) 2 Mbps: 10.72 dBm (0.0118 W)

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- This is a supplement report of BTL-FCCP-2-2007T046, BTL-FCCP-2-2007T046A, BTL-FCCP-2-2007T046B report. The differences compared with original report is added MediaTek / MT7921 module card. After evaluated, the changes with respect to the original one, all tests need to re-test.

3. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
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16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

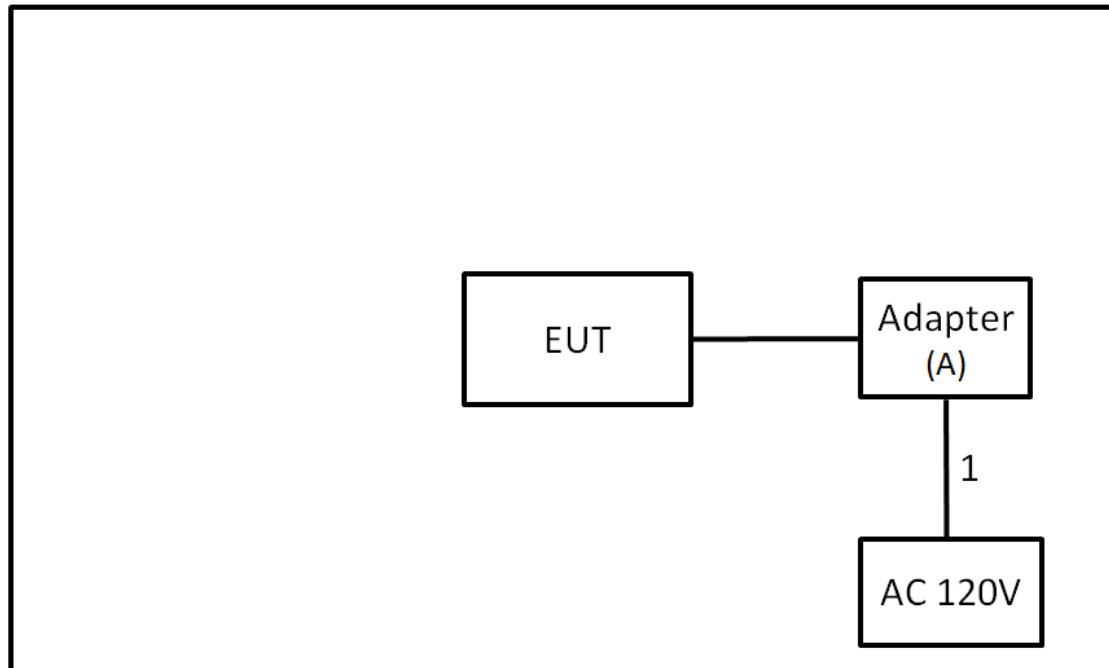
2.2 DESCRIPTION OF TEST MODES

Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Transmitter Radiated Emissions (below 1GHz)	2 Mbps	39	-
Transmitter Radiated Emissions (above 1GHz)	1/2 Mbps	00/39	Bandedge
	1/2 Mbps	00/19/39	Harmonic
Output Power	1/2 Mbps	00/19/39	-

NOTE:

- (1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
- (2) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Horizontal) is recorded.
- (3) All X, Y and Z axes are evaluated, but only the worst case (Z axis) is recorded.

2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Adapter	Delta	ADLX45YDC3D	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	Power Cable	NO	NO	0.9m

3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency of Emission (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

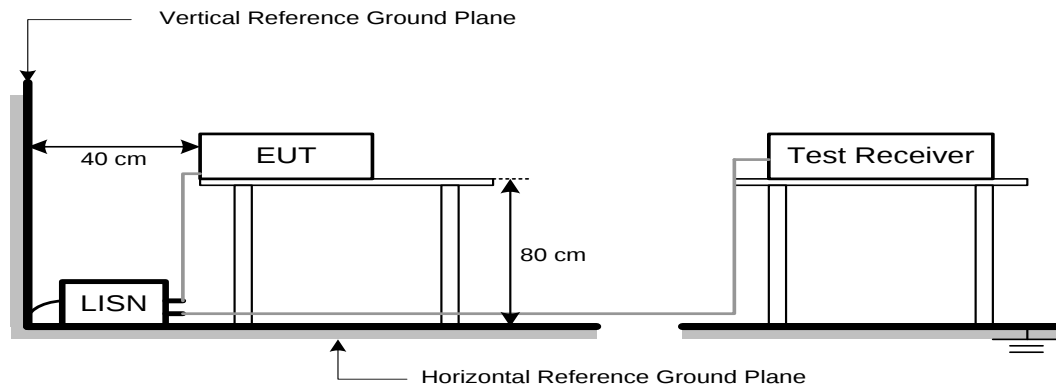
3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a "*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150 kHz to 30 MHz.

4. RADIATED EMISSION TEST

4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Band edge/ Harmonic at 3m (dBμV/m)		Harmonic at 1.5m (dBμV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	80 (Note 5)	60 (Note 5)

Note:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
 Margin Level = Measurement Value - Limit Value

(5)

$$FS_{\text{limit}} = FS_{\text{max}} - 20 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

$$20 \log d_{\text{limit}}/d_{\text{measure}} = 20 \log 3/1.5 = 6 \text{ dB.}$$

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	RBW 1 MHz VBW 3 MHz peak detector for Pk value RMS detector for AV value

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector

4.2 TEST PROCEDURE

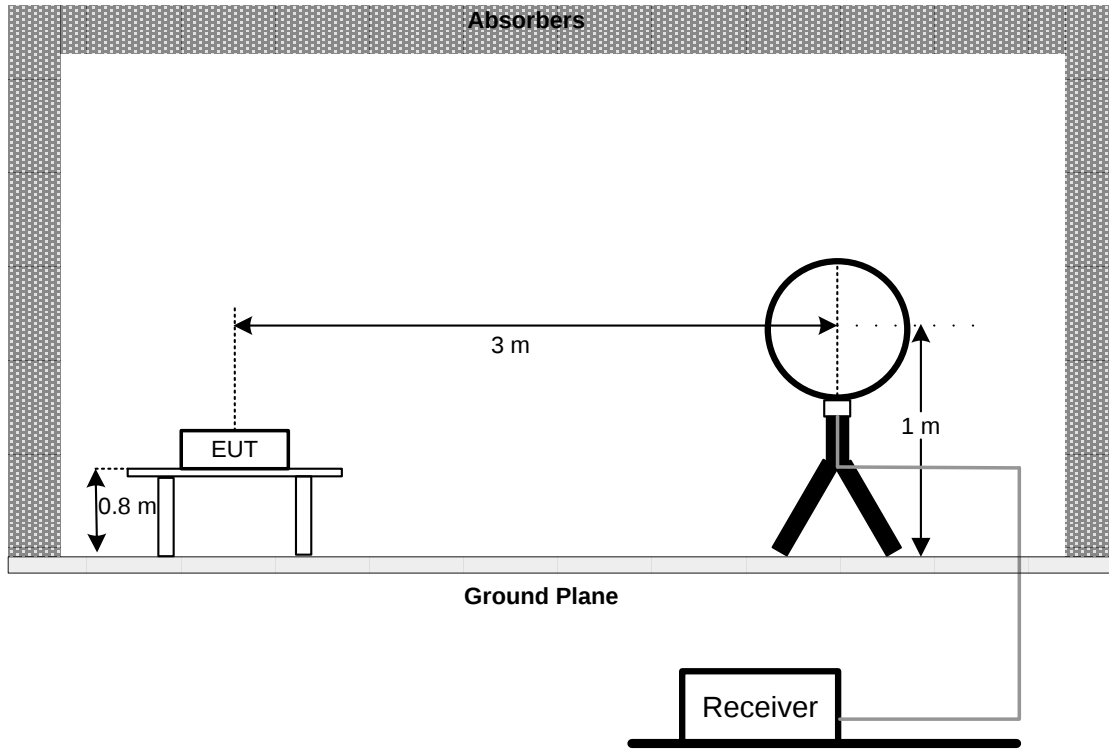
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(below 1 GHz)
- All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.3 DEVIATION FROM TEST STANDARD

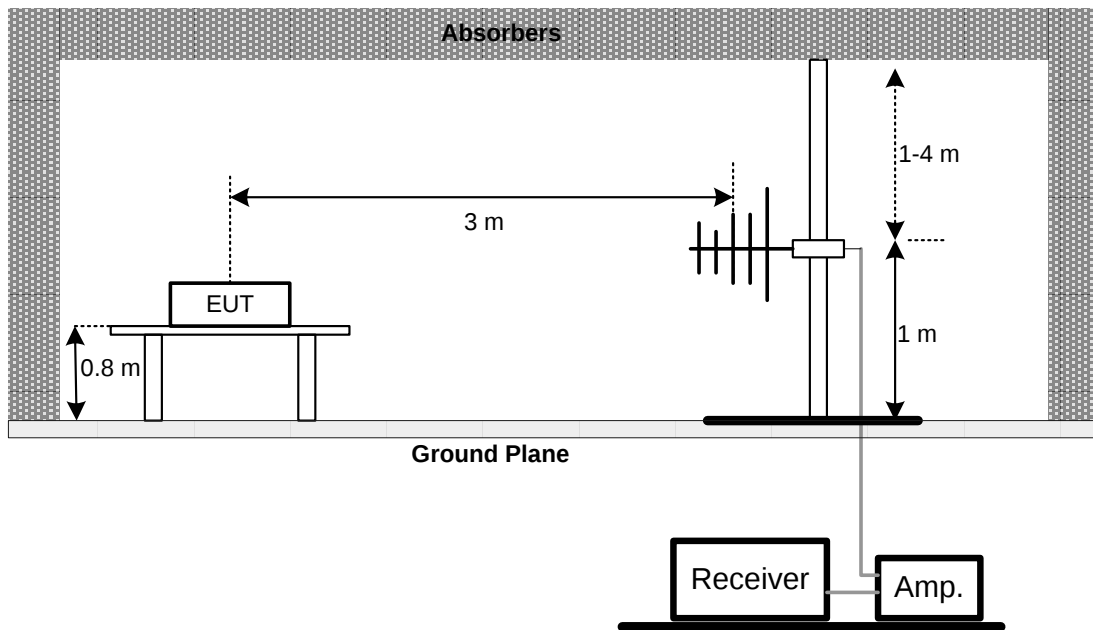
No deviation

4.4 TEST SETUP

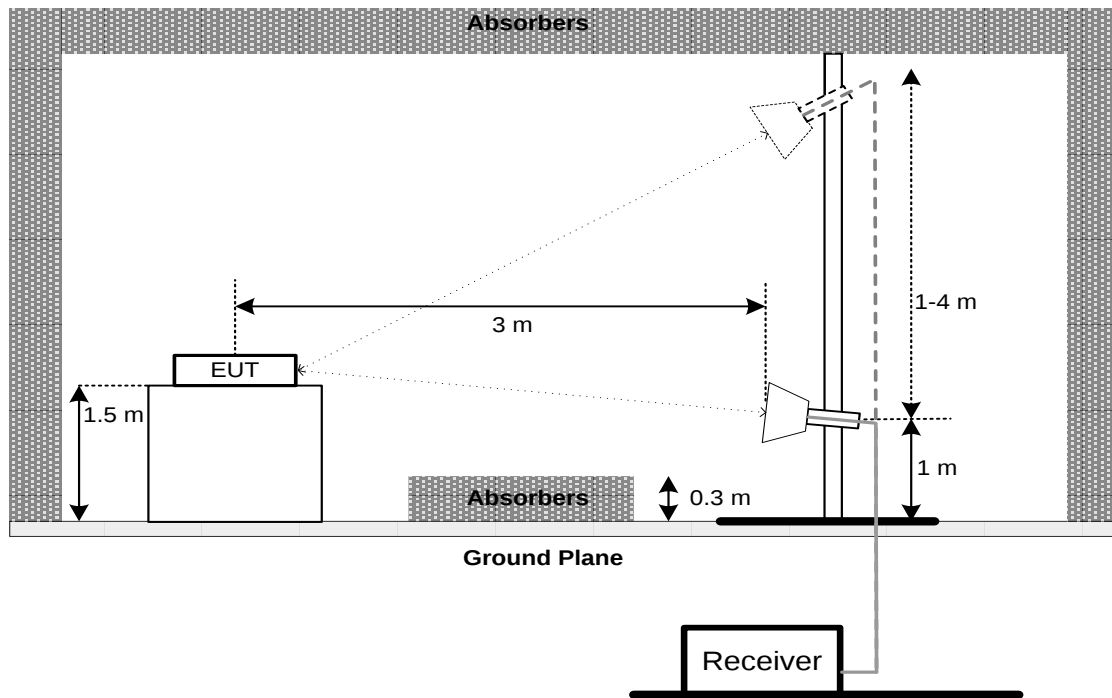
9 kHz-30 MHz



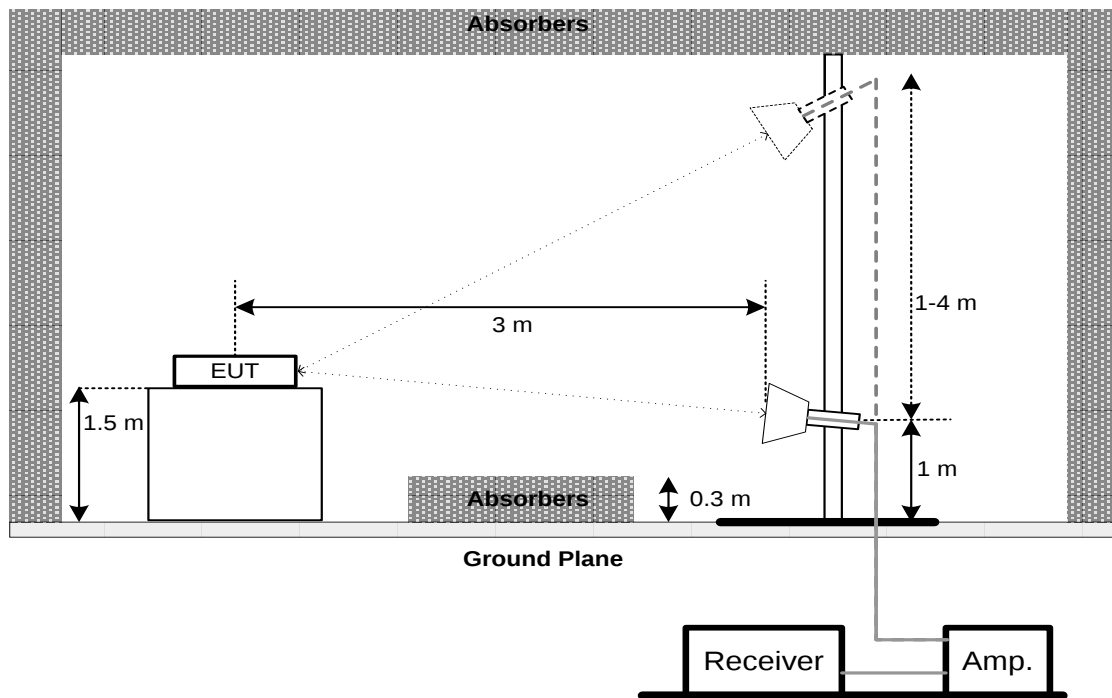
30 MHz to 1 GHz



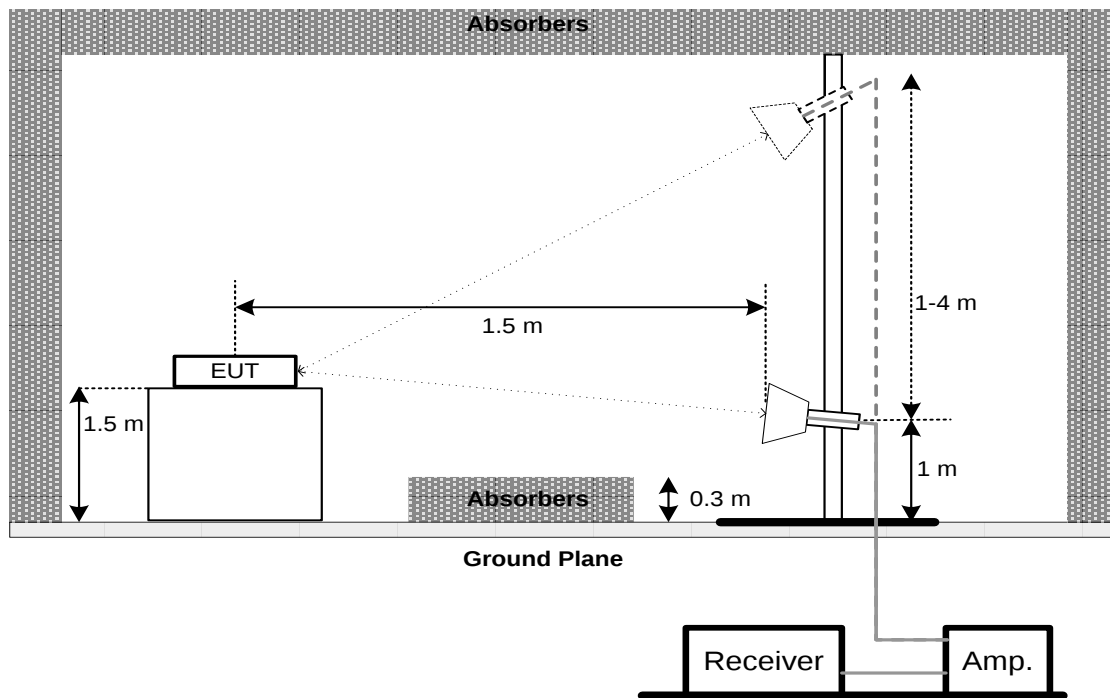
Above 1 GHz Band edge



Harmonic(1 GHz to 18 GHz)



Harmonic(Above 18 GHz)



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS - BELOW 30 MHZ

There were no emissions found below 30 MHz within 20 dB of the limit.

4.7 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX B.

4.8 TEST RESULT - ABOVE 1000 MHz

Please refer to the APPENDIX C.

Remark:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. OUTPUT POWER TEST

5.1 LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS

5.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- The maximum peak conducted output power was performed in accordance with method 9 b) of FCC KDB 558074 D01 DTS Meas Guidance.

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP



5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX D.

6. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2022
2	LISN	EMCO	3816/2	52765	Feb. 27, 2022
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 27, 2022
4	50Ω Terminator	SHX	TF5-3	15041305	Feb. 27, 2022
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 09, 2022
7	643 Shield Room	ETS	6*4*3m	N/A	N/A

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 15, 2022
2*	Amplifier	HP	8447D	2944A08742	Feb. 28, 2022
3	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 20, 2022
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	May 10, 2022
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jul. 07, 2021
3	Amplifier	Agilent	8449B	3008A02584	Jul. 25, 2021
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Feb. 28, 2022
5	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	N/A	EMC104-SM-SM-6 000	N/A	Oct. 16, 2021
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	Filter	STI	STI15-9912	N/A	Jul. 25, 2021
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 07, 2021
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 25, 2021
3	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 07, 2022
4	RF Cable	Tongkaichuan	N/A	N/A	N/A

Remark: "N/A" denotes no model name, serial no. or calibration specified.

"*" calibration period of equipment list is three year.

Except * item, all calibration period of equipment list is one year.

7. EUT TEST PHOTO**AC Power Line Conducted Emissions Test Photos**

Radiated Emissions Test Photos

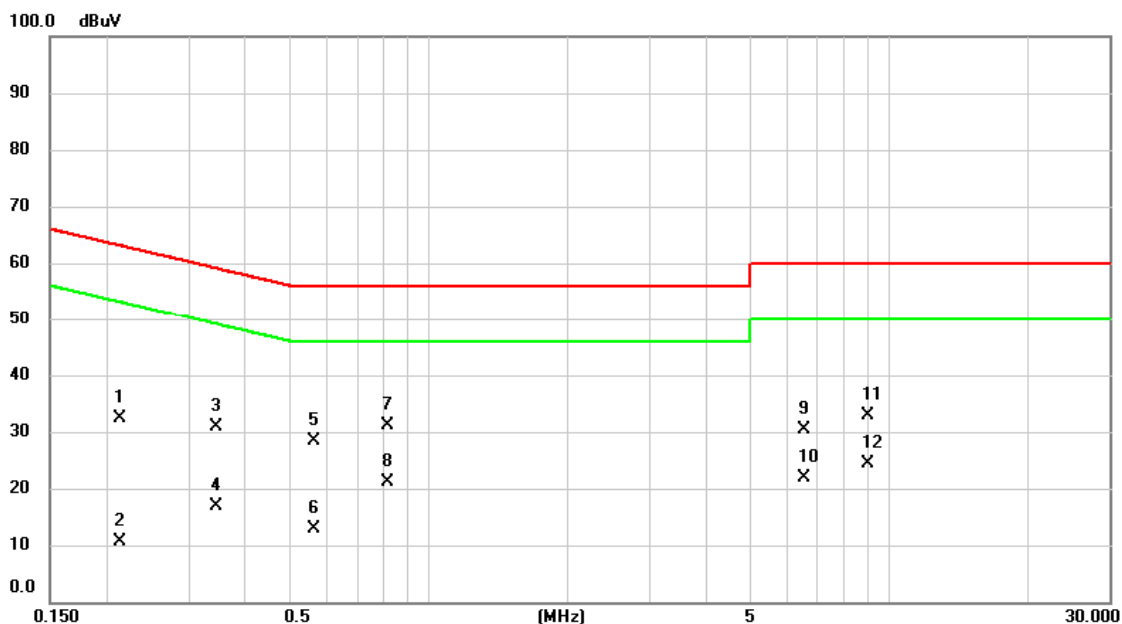
30 MHz to 1000 MHz



Radiated Emissions Test Photos**ABOVE 1 GHz**

APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode	Normal	Tested Date	2021/6/23
Test Frequency	-	Phase	Line

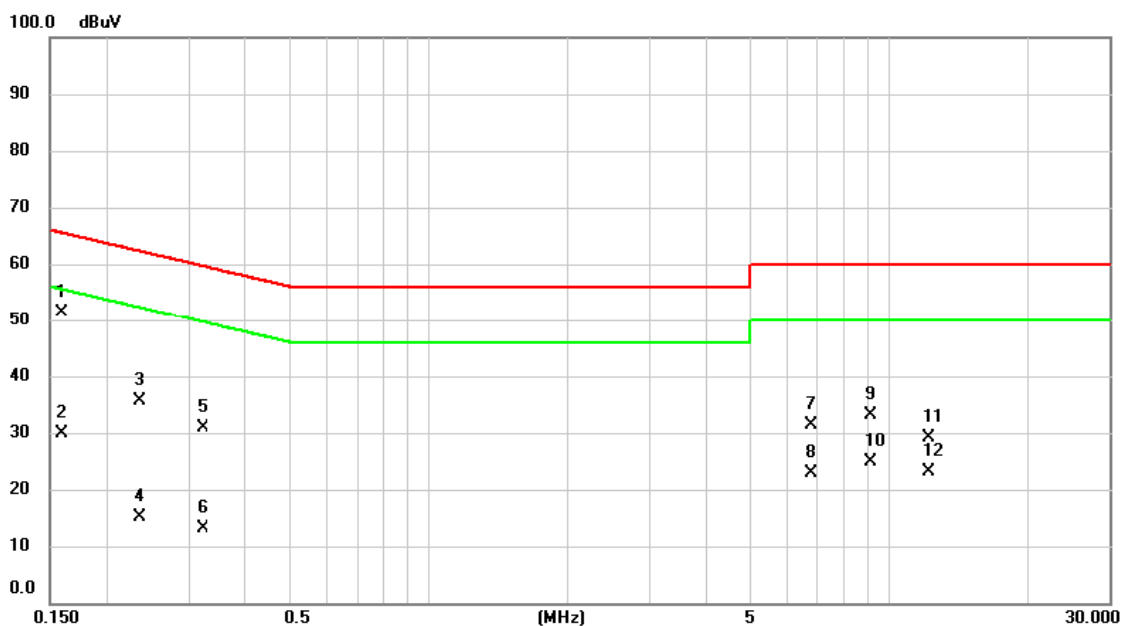


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector Comment
1		0.2130	22.82	9.63	32.45	63.09	-30.64	QP
2		0.2130	1.09	9.63	10.72	53.09	-42.37	AVG
3		0.3457	21.18	9.68	30.86	59.07	-28.21	QP
4		0.3457	7.09	9.68	16.77	49.07	-32.30	AVG
5		0.5640	18.80	9.68	28.48	56.00	-27.52	QP
6		0.5640	3.10	9.68	12.78	46.00	-33.22	AVG
7		0.8137	21.34	9.70	31.04	56.00	-24.96	QP
8	*	0.8137	11.55	9.70	21.25	46.00	-24.75	AVG
9		6.5400	20.59	9.84	30.43	60.00	-29.57	QP
10		6.5400	11.95	9.84	21.79	50.00	-28.21	AVG
11		8.9768	22.89	9.88	32.77	60.00	-27.23	QP
12		8.9768	14.49	9.88	24.37	50.00	-25.63	AVG

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Normal	Tested Date	2021/6/23
Test Frequency	-	Phase	Neutral

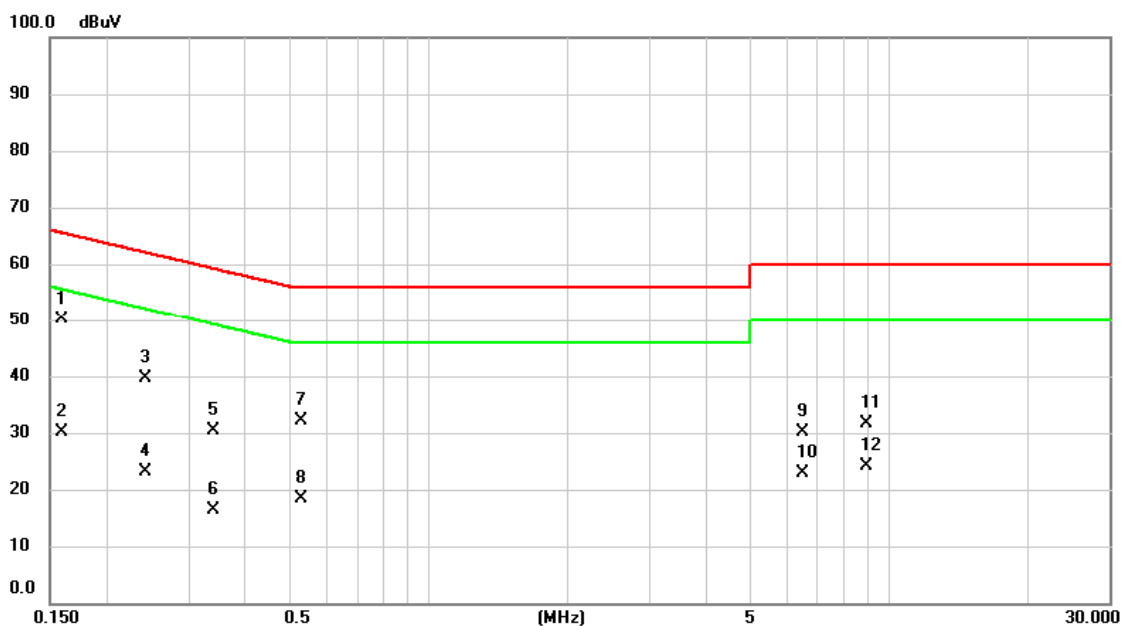


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1590	41.70	9.64	51.34	65.52	-14.18	QP	
2		0.1590	20.16	9.64	29.80	55.52	-25.72	AVG	
3		0.2355	26.09	9.63	35.72	62.25	-26.53	QP	
4		0.2355	5.58	9.63	15.21	52.25	-37.04	AVG	
5		0.3232	21.14	9.68	30.82	59.62	-28.80	QP	
6		0.3232	3.38	9.68	13.06	49.62	-36.56	AVG	
7		6.7875	21.57	9.84	31.41	60.00	-28.59	QP	
8		6.7875	13.09	9.84	22.93	50.00	-27.07	AVG	
9		9.1522	23.21	9.89	33.10	60.00	-26.90	QP	
10		9.1522	14.96	9.89	24.85	50.00	-25.15	AVG	
11		12.1763	19.19	9.91	29.10	60.00	-30.90	QP	
12		12.1763	13.14	9.91	23.05	50.00	-26.95	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/6/23
Test Frequency	-	Phase	Line

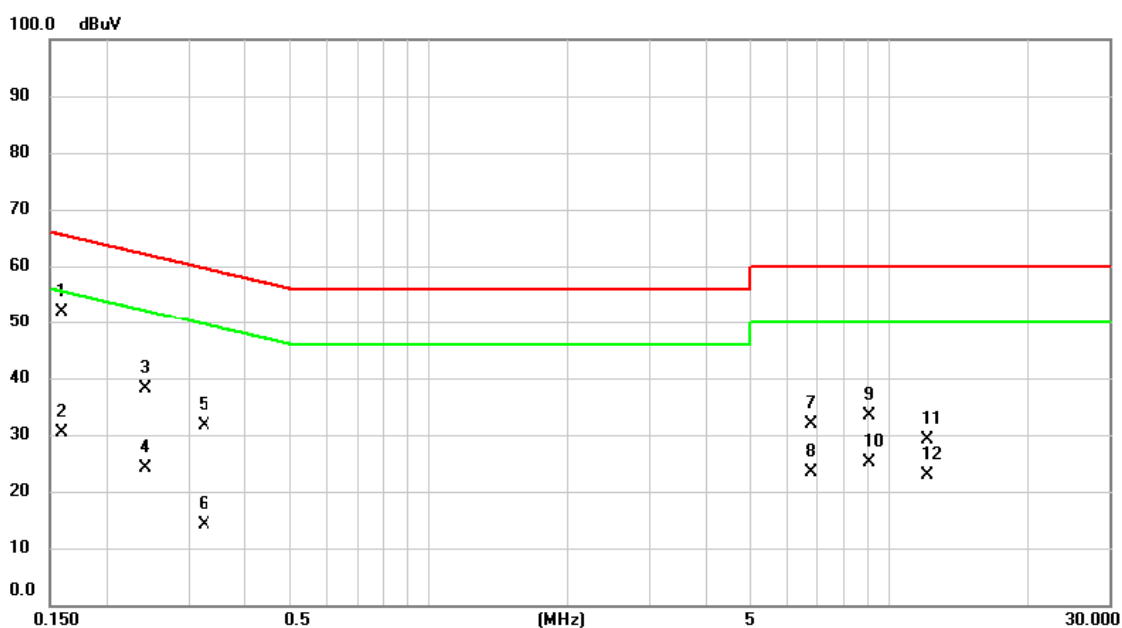


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector Comment
1	*	0.1590	40.55	9.64	50.19	65.52	-15.33	QP
2		0.1590	20.52	9.64	30.16	55.52	-25.36	AVG
3		0.2423	29.98	9.63	39.61	62.02	-22.41	QP
4		0.2423	13.60	9.63	23.23	52.02	-28.79	AVG
5		0.3412	20.68	9.68	30.36	59.17	-28.81	QP
6		0.3412	6.62	9.68	16.30	49.17	-32.87	AVG
7		0.5280	22.57	9.68	32.25	56.00	-23.75	QP
8		0.5280	8.67	9.68	18.35	46.00	-27.65	AVG
9		6.4815	20.25	9.84	30.09	60.00	-29.91	QP
10		6.4815	13.03	9.84	22.87	50.00	-27.13	AVG
11		8.9070	21.84	9.88	31.72	60.00	-28.28	QP
12		8.9070	14.29	9.88	24.17	50.00	-25.83	AVG

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/6/23
Test Frequency	-	Phase	Neutral



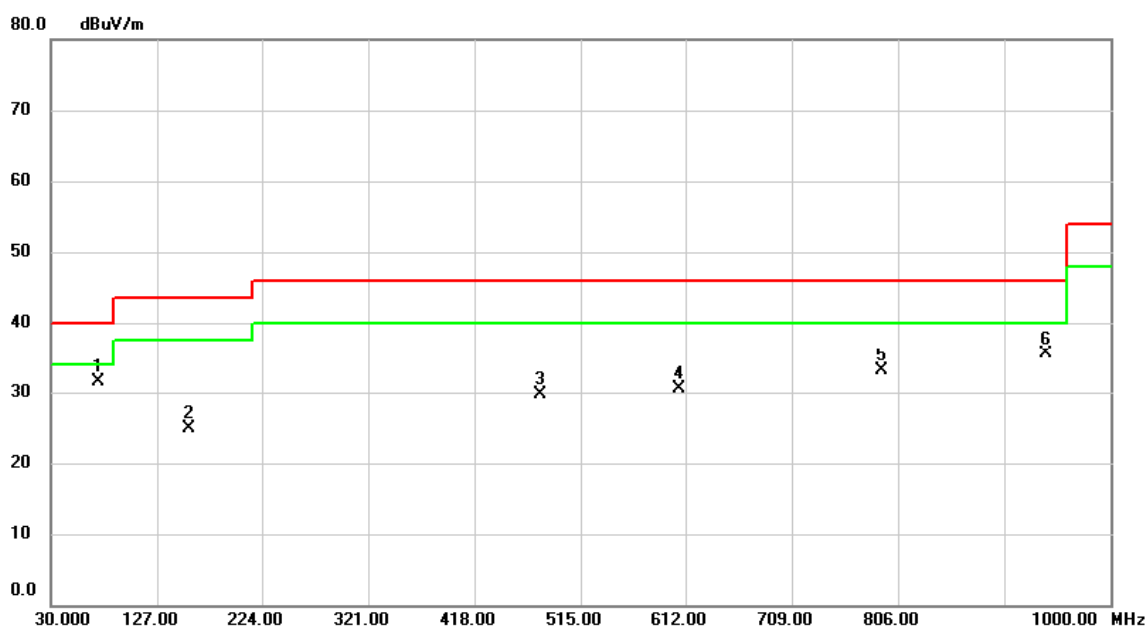
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1590	42.30	9.64	51.94	65.52	-13.58	QP	
2		0.1590	20.64	9.64	30.28	55.52	-25.24	AVG	
3		0.2423	28.44	9.63	38.07	62.02	-23.95	QP	
4		0.2423	14.53	9.63	24.16	52.02	-27.86	AVG	
5		0.3255	22.05	9.68	31.73	59.57	-27.84	QP	
6		0.3255	4.34	9.68	14.02	49.57	-35.55	AVG	
7		6.7808	22.04	9.84	31.88	60.00	-28.12	QP	
8		6.7808	13.55	9.84	23.39	50.00	-26.61	AVG	
9		9.0893	23.40	9.89	33.29	60.00	-26.71	QP	
10		9.0893	15.21	9.89	25.10	50.00	-24.90	AVG	
11		12.1178	19.24	9.91	29.15	60.00	-30.85	QP	
12		12.1178	13.05	9.91	22.96	50.00	-27.04	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/22
Test Frequency	CH39: 2480 MHz	Polarization	Vertical

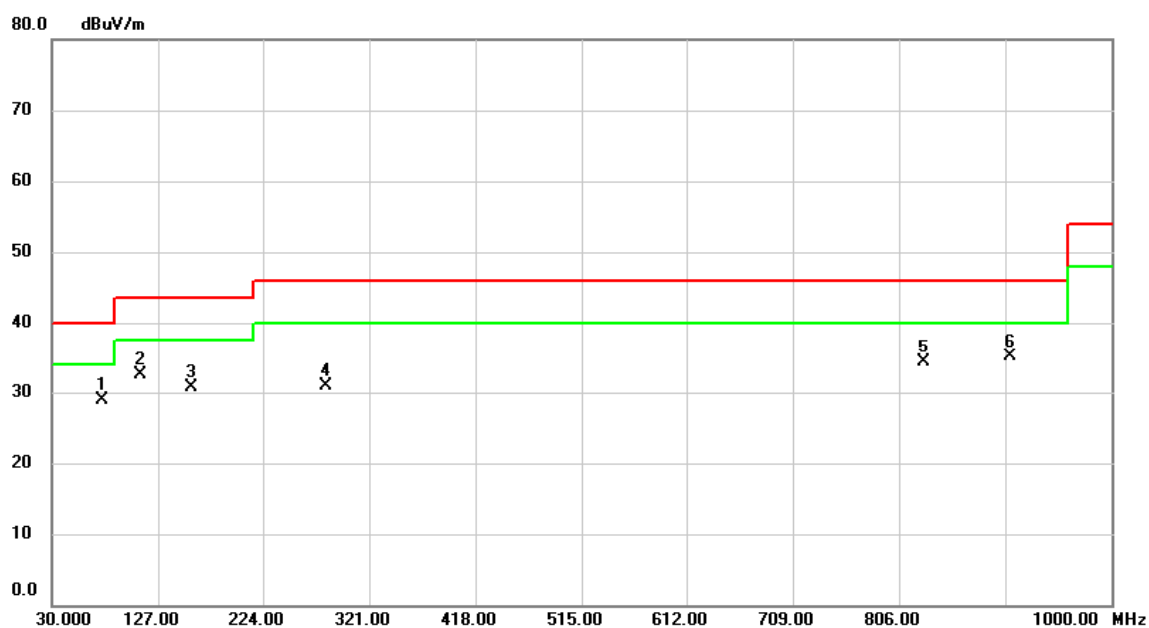


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	73.359	48.45	-16.95	31.50	40.00	-8.50	peak	
2		157.523	37.28	-12.43	24.85	43.50	-18.65	peak	
3		478.625	36.58	-6.92	29.66	46.00	-16.34	peak	
4		605.695	35.02	-4.46	30.56	46.00	-15.44	peak	
5		790.512	34.09	-0.92	33.17	46.00	-12.83	peak	
6		941.477	33.94	1.54	35.48	46.00	-10.52	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/22
Test Frequency	CH39: 2480 MHz	Polarization	Horizontal



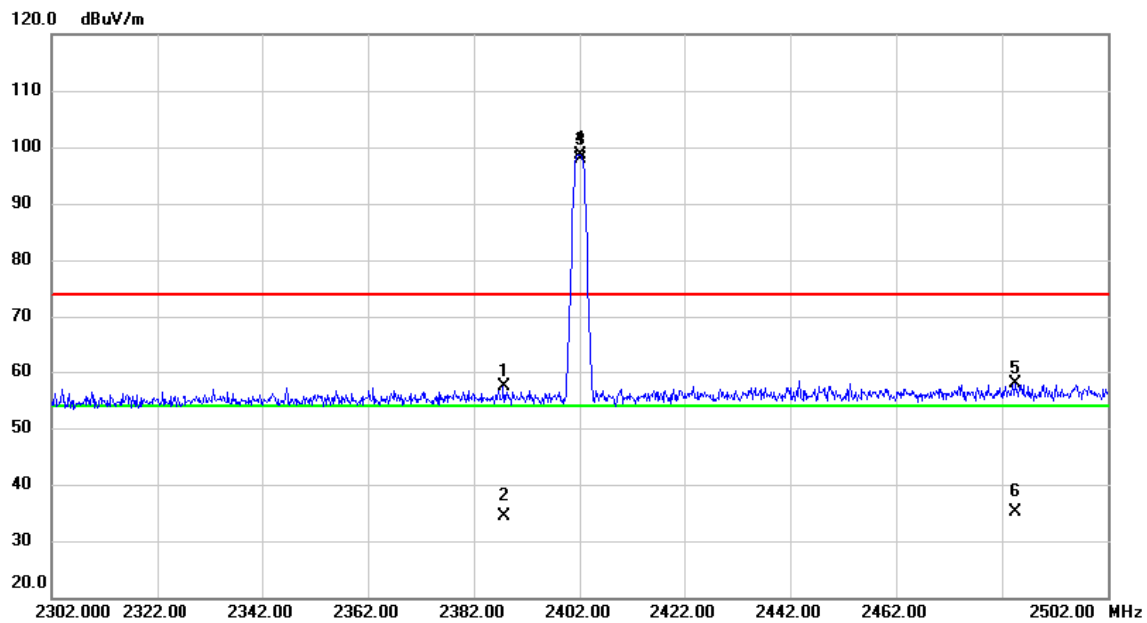
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		75.396	46.28	-17.41	28.87	40.00	-11.13	peak	
2	*	110.284	47.61	-15.02	32.59	43.50	-10.91	peak	
3		158.687	43.11	-12.40	30.71	43.50	-12.79	peak	
4		281.392	42.49	-11.52	30.97	46.00	-15.03	peak	
5		828.148	34.93	-0.66	34.27	46.00	-11.73	peak	
6		907.915	34.53	0.52	35.05	46.00	-10.95	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - ABOVE 1000 MHZ

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Horizontal

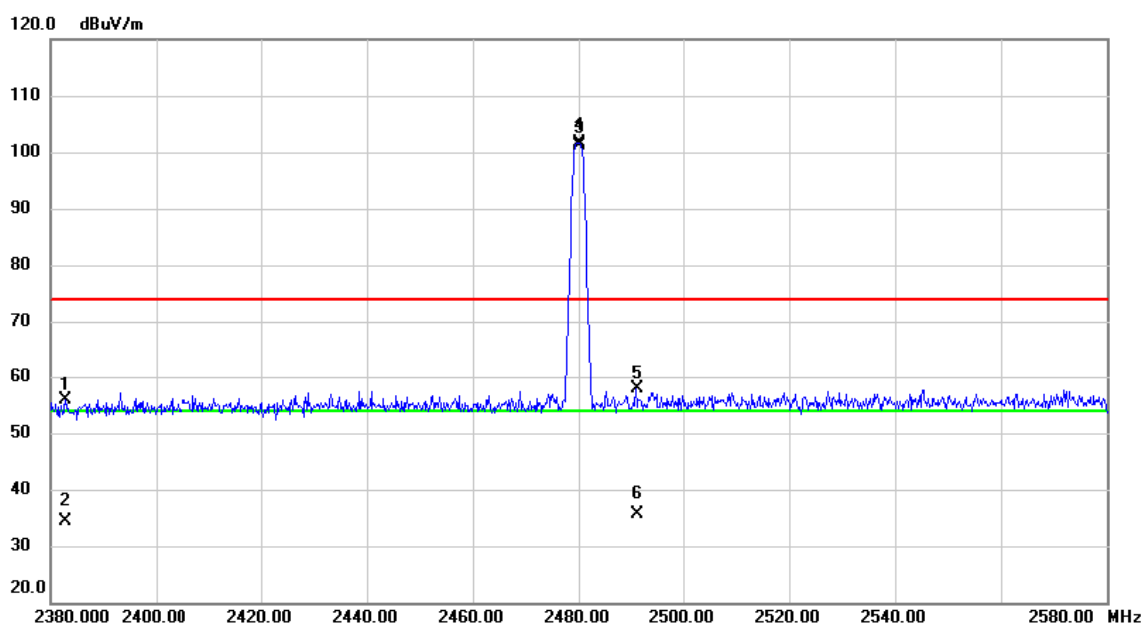


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2387.640	50.11	7.25	57.36	74.00	-16.64	peak	
2		2387.640	27.09	7.25	34.34	54.00	-19.66	AVG	
3	X	2402.000	91.41	7.26	98.67	74.00	24.67	peak	No Limit
4	*	2402.000	90.64	7.26	97.90	54.00	43.90	AVG	No Limit
5		2484.493	50.59	7.25	57.84	74.00	-16.16	peak	
6		2484.493	27.82	7.25	35.07	54.00	-18.93	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Horizontal

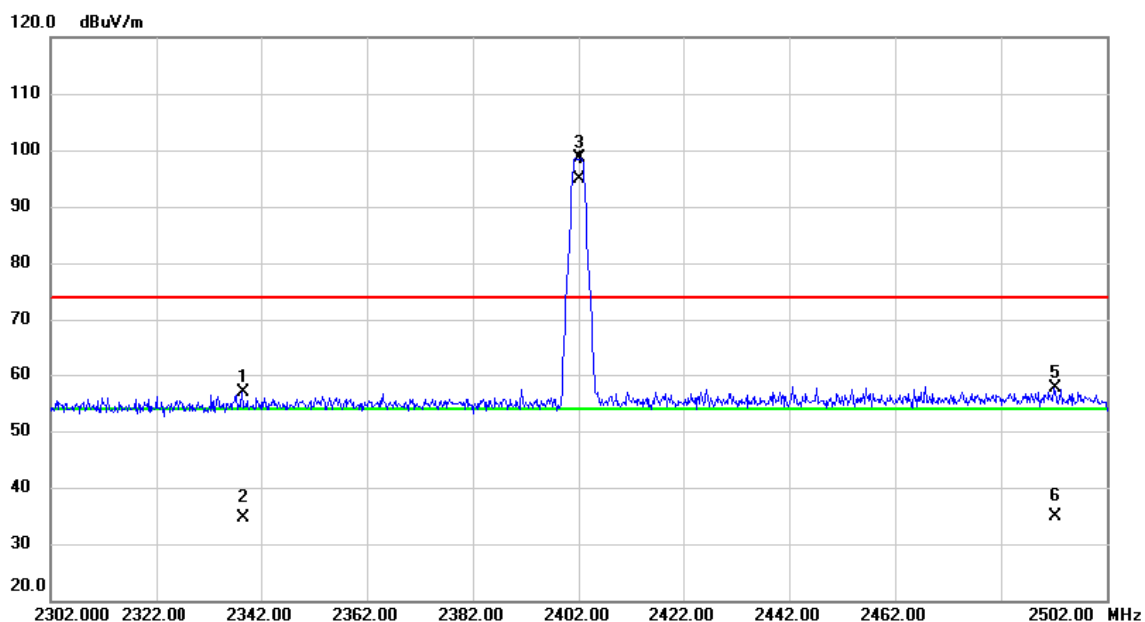


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2382.860	48.67	7.25	55.92	74.00	-18.08	peak	
2		2382.860	27.02	7.25	34.27	54.00	-19.73	AVG	
3	X	2480.000	94.38	7.25	101.63	74.00	27.63	peak	No Limit
4	*	2480.000	93.90	7.25	101.15	54.00	47.15	AVG	No Limit
5		2490.940	50.59	7.24	57.83	74.00	-16.17	peak	
6		2490.940	28.34	7.24	35.58	54.00	-18.42	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Horizontal

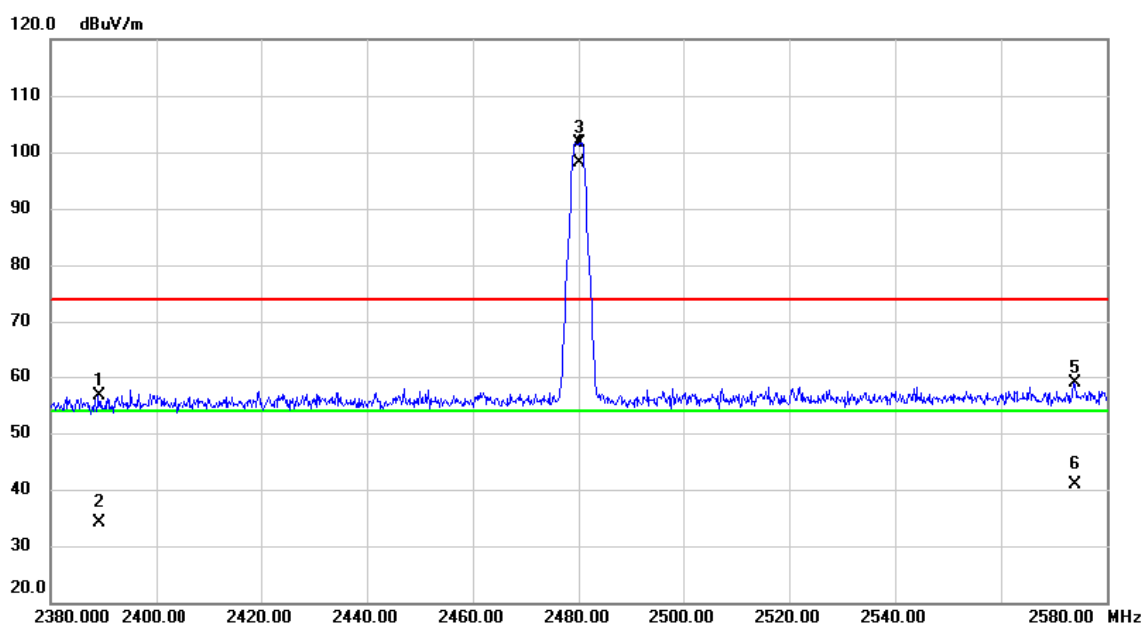


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2338.573	49.60	7.26	56.86	74.00	-17.14	peak	
2		2338.573	27.28	7.26	34.54	54.00	-19.46	AVG	
3	X	2402.000	91.31	7.26	98.57	74.00	24.57	peak	No Limit
4	*	2402.000	87.72	7.26	94.98	54.00	40.98	AVG	No Limit
5		2492.153	50.29	7.24	57.53	74.00	-16.47	peak	
6		2492.153	27.74	7.24	34.98	54.00	-19.02	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Horizontal

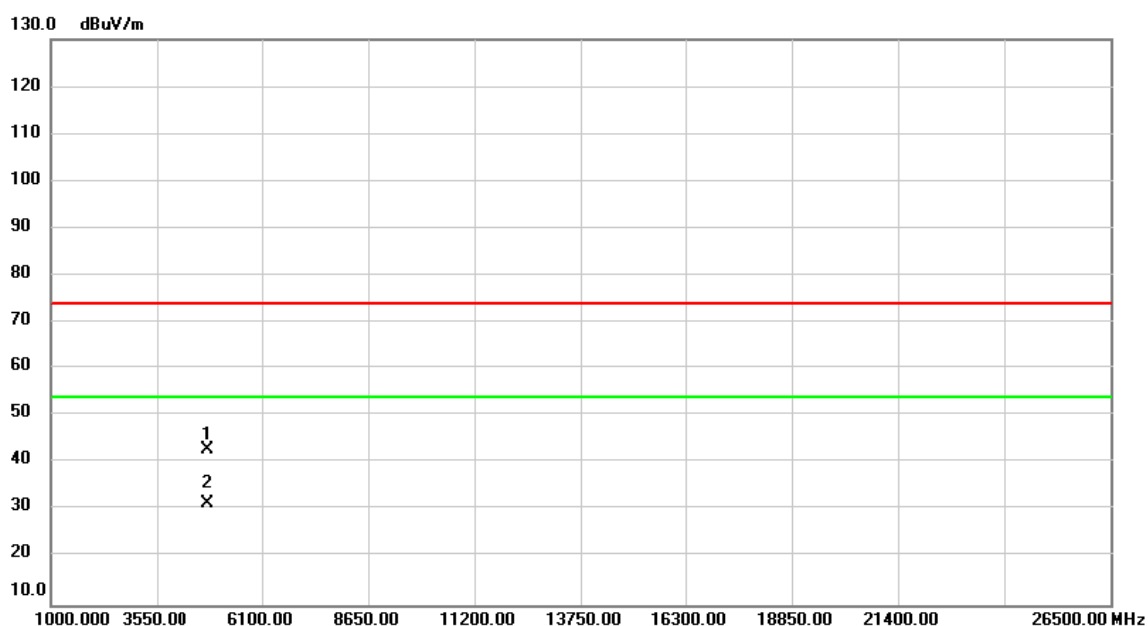


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2389.093	49.39	7.26	56.65	74.00	-17.35	peak	
2		2389.093	26.84	7.26	34.10	54.00	-19.90	AVG	
3	X	2480.000	94.41	7.25	101.66	74.00	27.66	peak	No Limit
4	*	2480.000	90.83	7.25	98.08	54.00	44.08	AVG	No Limit
5		2573.987	51.36	7.53	58.89	74.00	-15.11	peak	
6		2573.987	33.39	7.53	40.92	54.00	-13.08	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Vertical

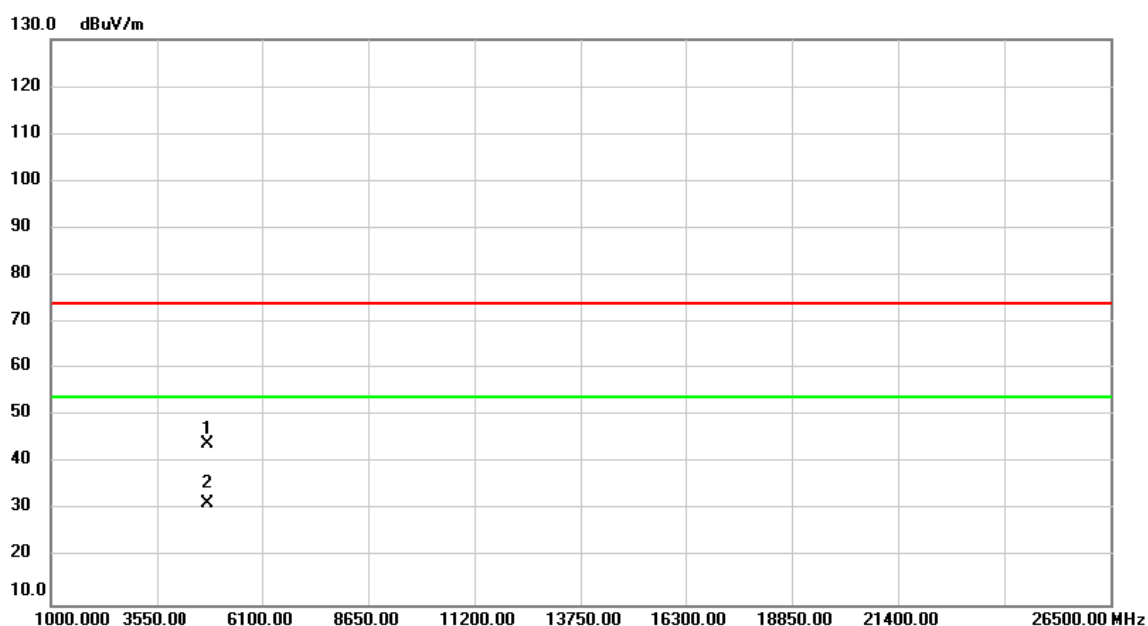


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	38.50	4.40	42.90	74.00	-31.10	peak	
2	*	4804.000	27.14	4.40	31.54	54.00	-22.46	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Horizontal

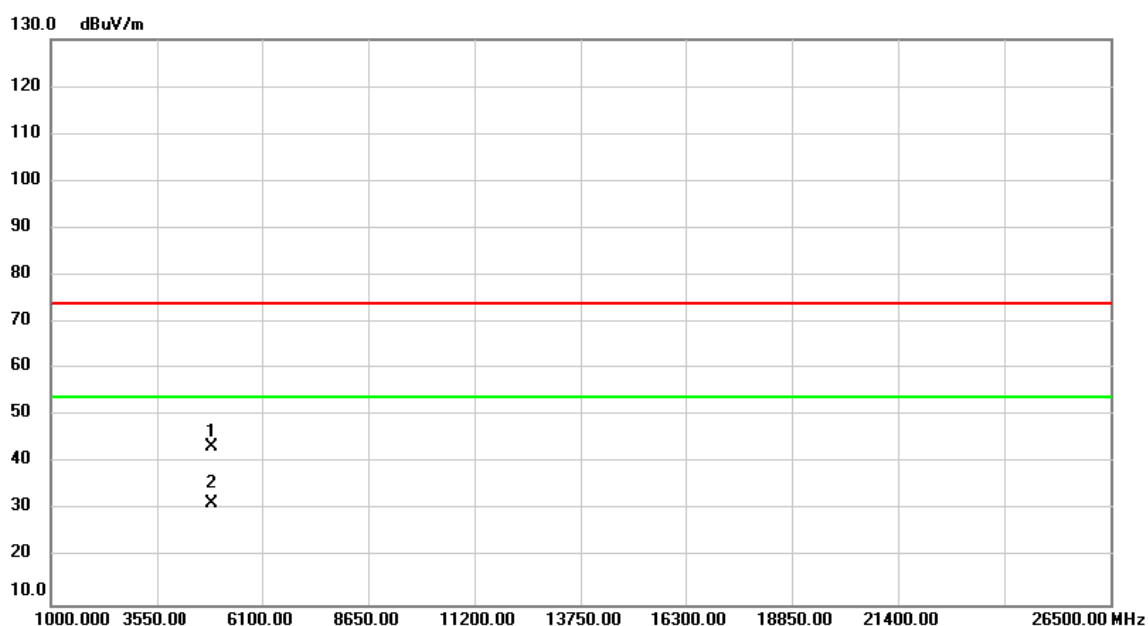


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	39.53	4.40	43.93	74.00	-30.07	peak	
2	*	4804.000	27.12	4.40	31.52	54.00	-22.48	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH19: 2440 MHz	Polarization	Vertical

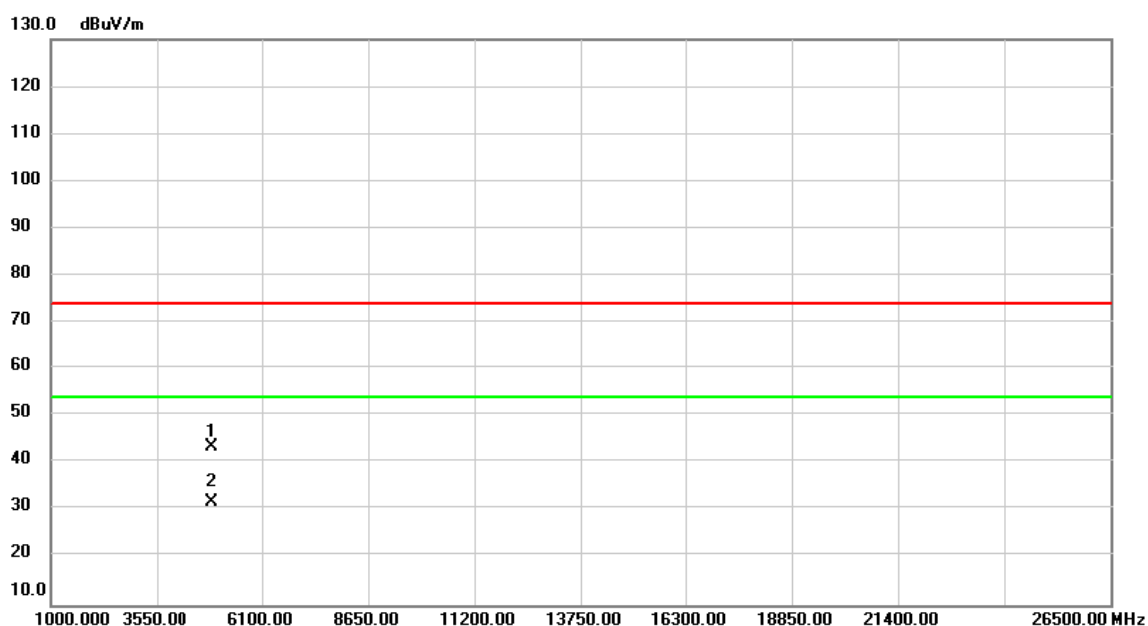


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4880.000	38.71	4.61	43.32	74.00	-30.68	peak	
2	*	4880.000	26.84	4.61	31.45	54.00	-22.55	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH19: 2440 MHz	Polarization	Horizontal

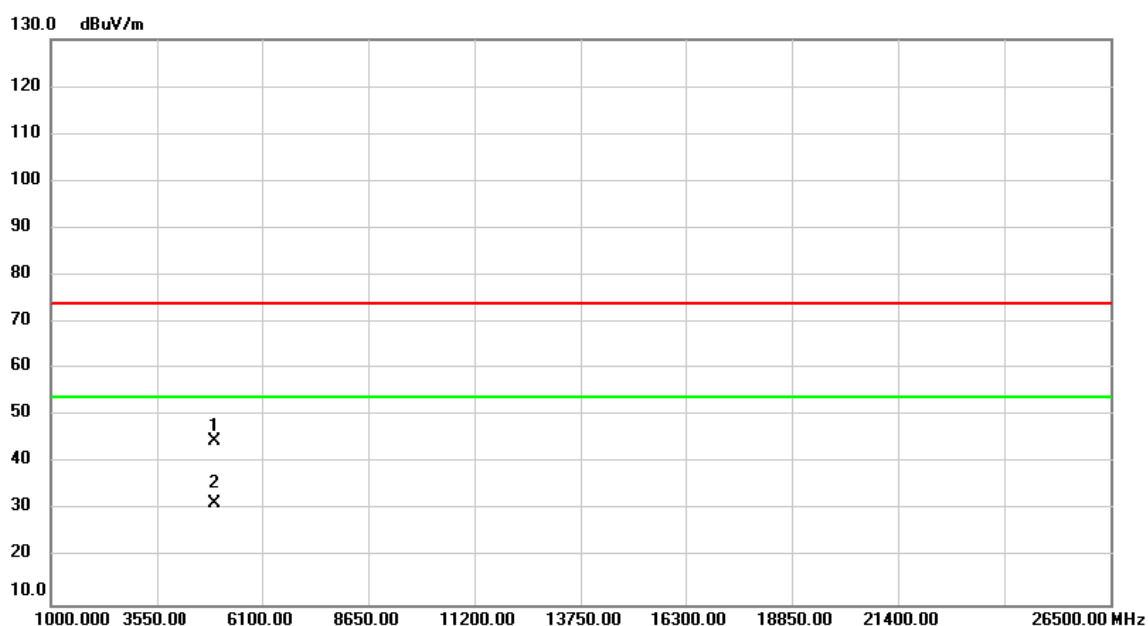


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4880.000	38.96	4.61	43.57	74.00	-30.43	peak	
2	*	4880.000	27.08	4.61	31.69	54.00	-22.31	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Vertical

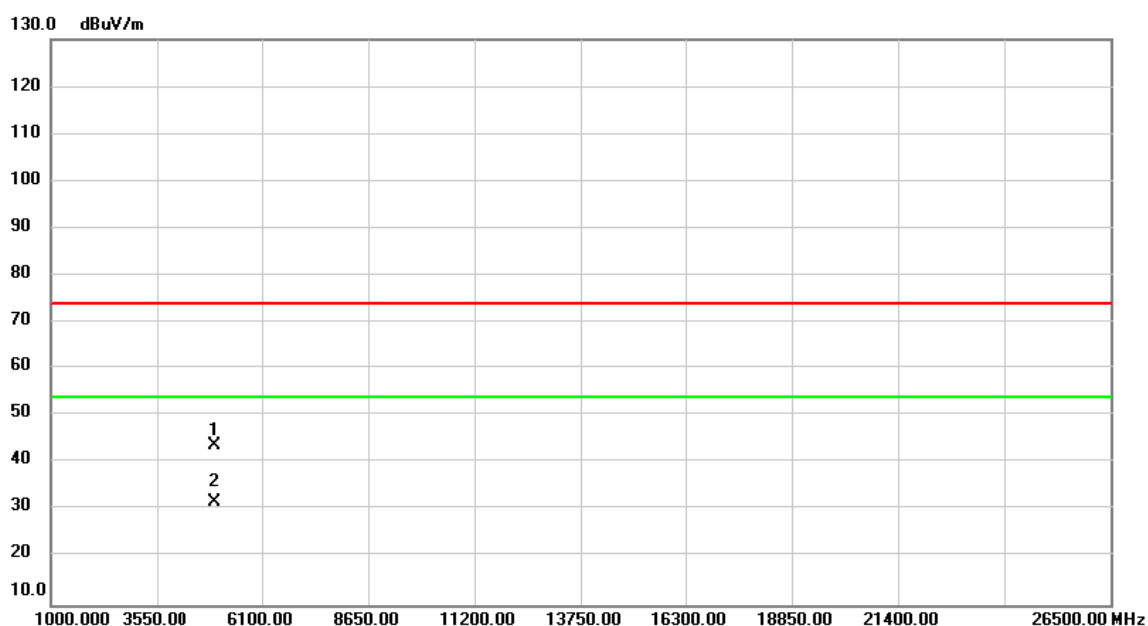


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	39.73	4.81	44.54	74.00	-29.46	peak	
2	*	4960.000	26.70	4.81	31.51	54.00	-22.49	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (1Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Horizontal

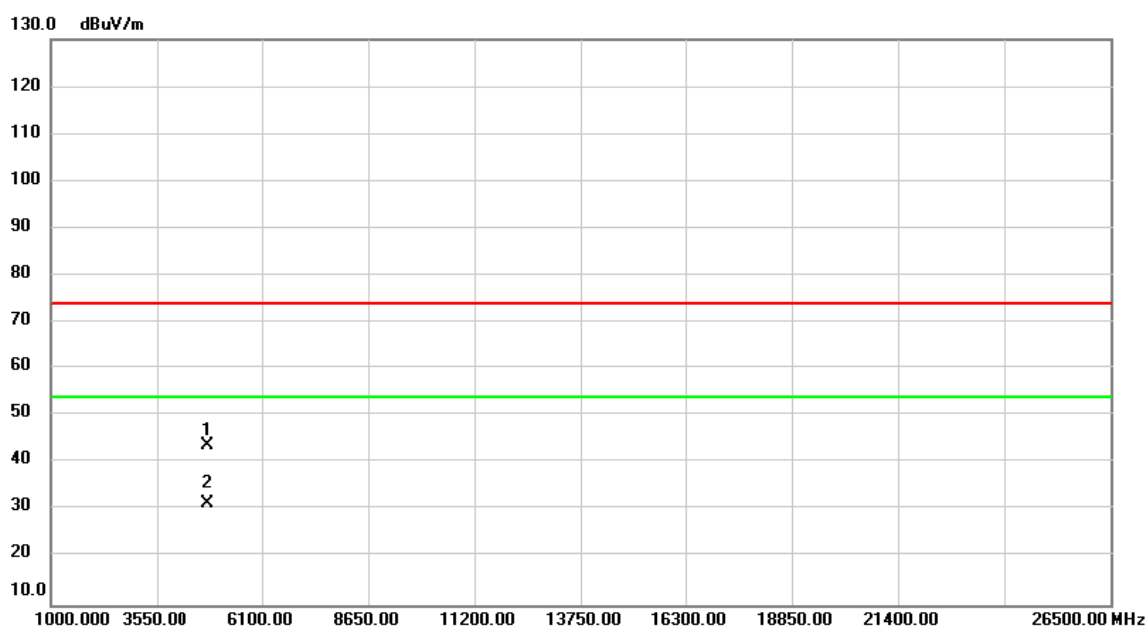


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	38.90	4.81	43.71	74.00	-30.29	peak	
2	*	4960.000	27.02	4.81	31.83	54.00	-22.17	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Vertical

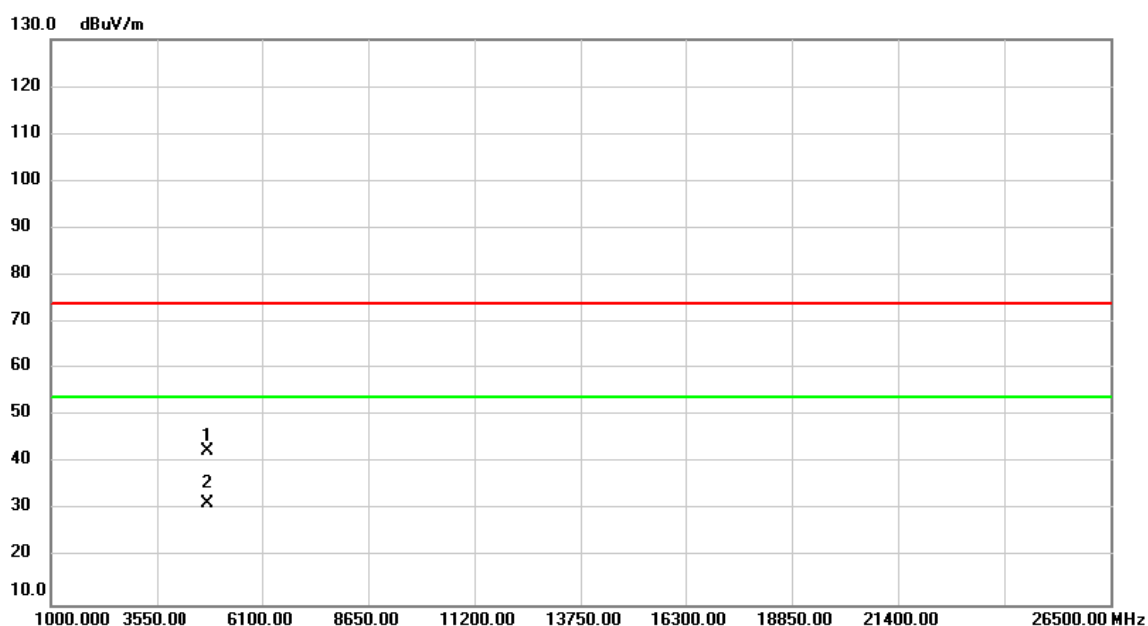


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4804.000	39.41	4.40	43.81	74.00	-30.19	peak	
2	*	4804.000	26.99	4.40	31.39	54.00	-22.61	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH00: 2402 MHz	Polarization	Horizontal

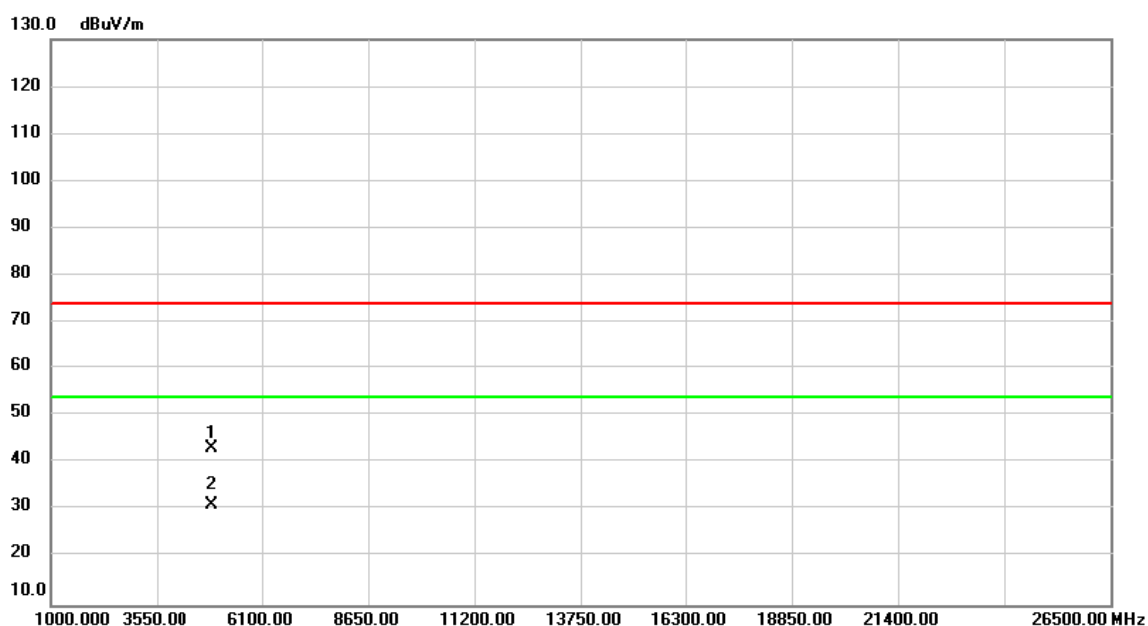


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4804.000	38.26	4.40	42.66	74.00	-31.34	peak	
2	*	4804.000	27.18	4.40	31.58	54.00	-22.42	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH19: 2440 MHz	Polarization	Vertical

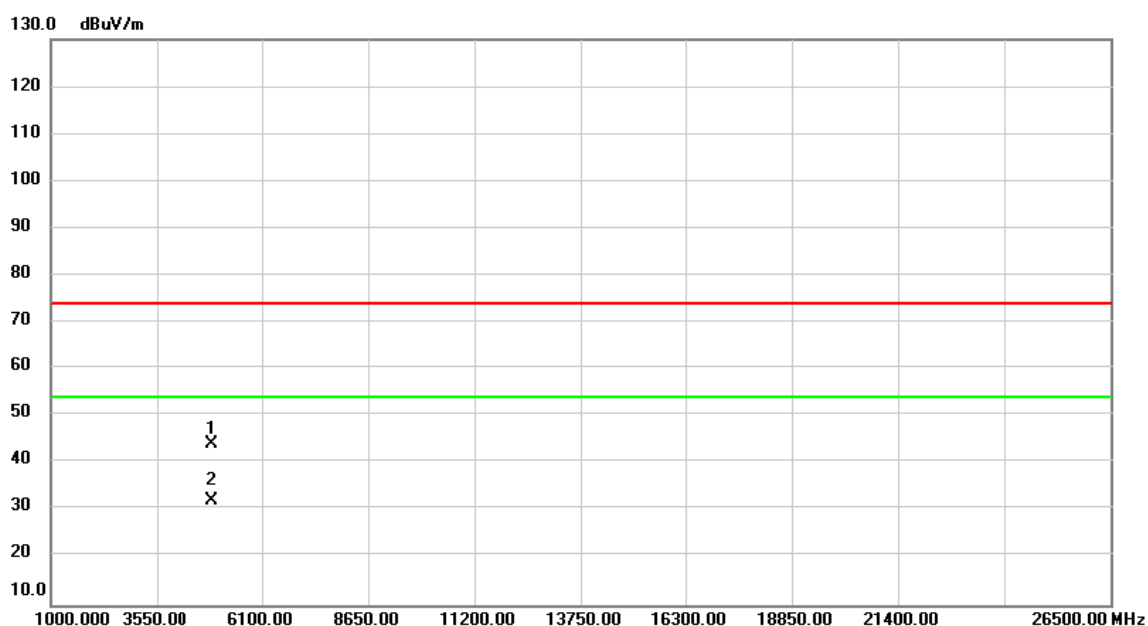


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4880.000	38.62	4.61	43.23	74.00	-30.77	peak	
2	*	4880.000	26.64	4.61	31.25	54.00	-22.75	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH19: 2440 MHz	Polarization	Horizontal

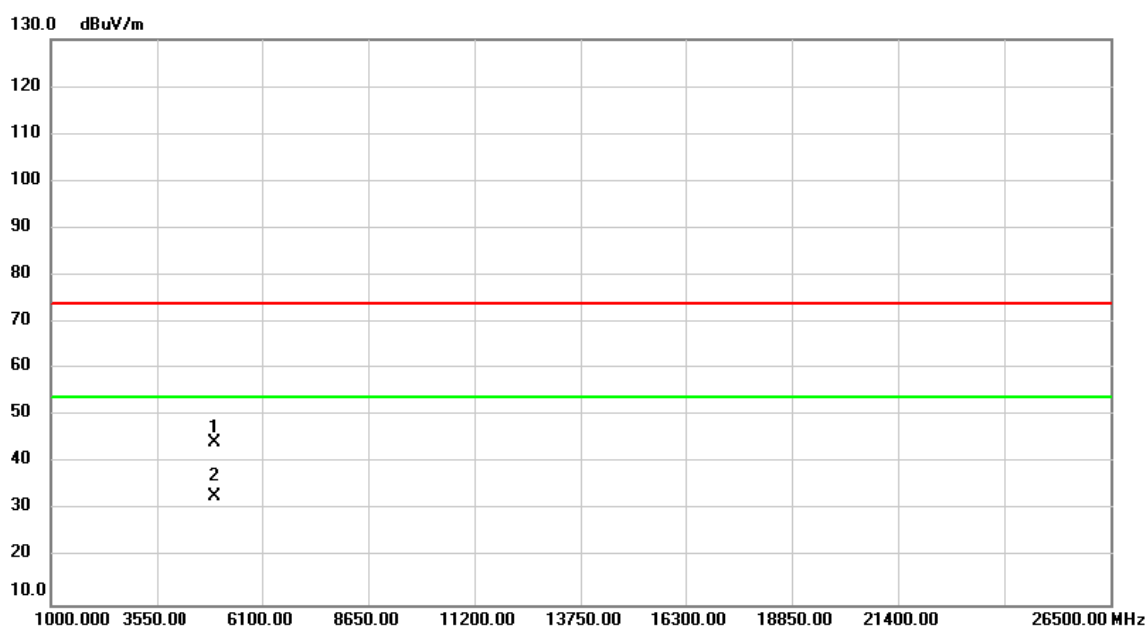


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4880.000	39.40	4.61	44.01	74.00	-29.99	peak	
2	*	4880.000	27.34	4.61	31.95	54.00	-22.05	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Vertical

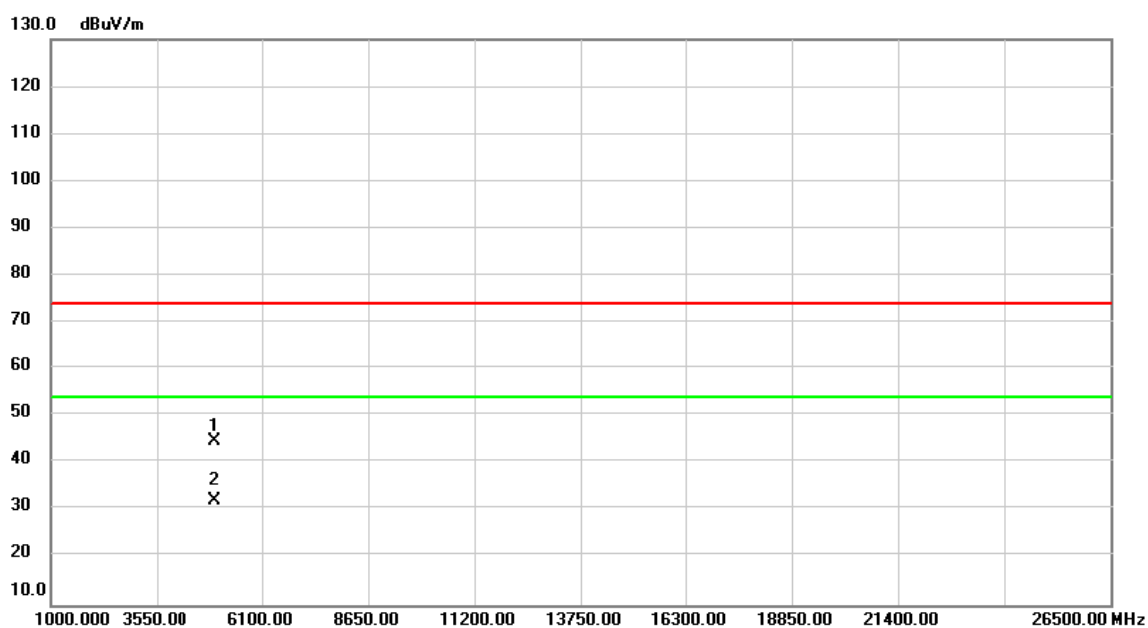


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	39.63	4.81	44.44	74.00	-29.56	peak	
2	*	4960.000	28.22	4.81	33.03	54.00	-20.97	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	BLE 5.0 (2Mbps)	Test Date	2021/6/21
Test Frequency	CH39: 2480 MHz	Polarization	Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	39.74	4.81	44.55	74.00	-29.45	peak	
2	*	4960.000	27.20	4.81	32.01	54.00	-21.99	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - OUTPUT POWER

Test Mode :	BLE5.0 (1Mbps)	Tested Date	2021/6/23
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	10.06	0.0101	30.00	1.0000	Pass
2440	10.62	0.0115	30.00	1.0000	Pass
2480	10.64	0.0116	30.00	1.0000	Pass

Test Mode :	BLE5.0 (2Mbps)	Tested Date	2021/6/23
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	9.99	0.0100	30.00	1.0000	Pass
2440	10.64	0.0116	30.00	1.0000	Pass
2480	10.72	0.0118	30.00	1.0000	Pass

End of Test Report